

CONTAINER APPARATUS AND METHOD

Field of the Invention

The present invention relates to the field of improved methods and apparatus for storage of pills, liquids, and drugs.

Claim for Priority

This application is a continuation of and claims the priority of parent patent application serial number 09/387,877 filed on September 1, 1999, and titled "CONTAINER APPARATUS AND METHOD".

Background of the Invention

Various apparatus are known in the art to store drugs, pills, and liquids. U.S. Patent No. 4,038,937 to Moe discloses a medicine dispenser and method. That patent shows a device which is constructed from a case 8, a tray 40, a tray insert 50, and from a plurality of slidable transparent cover strips 30. The tray insert 50 has a plurality of open compartments which are all connected together as one unit. (Fig. 1, col. 2, ln. 62 – col. 3, ln. 40). After the device is put together, the top openings of the compartment are covered by the transparent sliding coverstrips. The bottom surface and walls of each compartment are opaque.

A product is known in the art where seven sealable plastic containers are fixed to each other for providing pills or drugs for seven days of the week. This product provides transparent or lightly tinted walls, top surface, and bottom surface which are not opaque and therefore light can damage the pills or drugs. Another product is known in the art for fixing four sealable plastic containers to each other for four times of the day. Another product is known for stacking clear

plastic round containers, but this product does not provide both a lid for each round container.

Disclosure Document

A disclosure document numbered 458445, received by the patent office on June 30, 1999, and filed by the inventor Natalie Lashley, described aspects of the present invention.

Summary of the Invention

The present invention in one embodiment provides an apparatus comprised of a base and a plurality of containers. The base may have a plurality of receptacles, each of the plurality of receptacles having a first dimension. Each of the plurality of containers may correspond to one of the plurality of receptacles. Each container may have a first dimension which is about the same as the first dimension of its corresponding receptacle. The first dimension of each of the plurality of containers may be slightly greater or slightly less than the first dimension of its corresponding receptacle. If it is slightly greater the receptacles may need to be elastic to allow their corresponding container to come in.

The base may have a top surface and each of the plurality of receptacles may be comprised of a plurality of walls, each of which extends upward from the top surface of the base. Each of the plurality of containers may have a lid which can be sealed and unsealed. The plurality of receptacles can be arranged in a plurality of rows and columns. Each of the plurality of containers may have protrusion at its top and a recess at its bottom so that a first container can be stacked on a second container by inserting the protrusion at the top of the first container into the recess at the bottom of the second container and vice versa. Furthermore, each of the plurality of containers may have bottom surface bounded by a plurality outer walls which define

an octagonal shape and each of the plurality of receptacles has an opening which is bounded by a plurality of walls which define an octagonal shape.

The base may include means for temporarily attaching each of the plurality of containers to the base which may be comprised of the receptacles.

In one embodiment each container may be comprised of a plurality of walls, a bottom surface, a lid, wherein the plurality of walls, bottom surface, and lid enclose a substantially sealed chamber when the lid is in a closed position. In addition when each lid is in an opened position there is an opening at the top of each chamber of each container, wherein the top of each chamber is opposite each bottom surface, and each chamber is bounded by the plurality of walls, and the bottom surface. In this embodiment each lid and each set of plurality of walls are substantially opaque while each bottom surface of each container is transparent, so that an individual can see the contents inside each chamber through each bottom surface. In addition, if a base is included for attaching the containers to, the base may be transparent to again allow an individual to see the contents inside each chamber of each container. The opaqueness of the walls and lid prevents pills from being damaged by light when the container is in an upright position.

In some embodiments four rows of seven columns of containers for a total of twenty-eight containers are provided for attaching to a base. In one embodiment a single row of seven containers is provided for attaching to an elongated base. In some embodiments the base for attaching the containers to may be transparent in other embodiments the base may have openings in order to allow an individual to see the contents of containers. The container lid in some embodiments may be of a snap on type. In other embodiments, the container lid may be of a screw on type or of some other known type.

The present invention allows people to pocket an individual container or individual containers and use the contents at any time and at any location. Previous devices, such as shown in U.S. patent no. 4,038,937 could not be placed in the pocket and used in any location. In some embodiments the present invention allows containers to be either connected horizontally (by being connected to a base assembly) or connected vertically by being stacked one on top of another. This allows any desired regimen of use to be implemented as an individual so determines. Prior devices typically have one manner of connecting such as stacking or being connected horizontally and also are not typically removable or detachable. This designates a set regimen for use. An individual cannot vary a regimen as based upon a modified need.

Further objects and advantages of my invention will become apparent from a consideration of the drawings and ensuing specification.

Brief Description of the Drawings

Fig. 1 is a perspective view of a plurality containers and a base assembly in accordance with an embodiment of the present invention with the plurality of containers separated from the base assembly with part of the base assembly shown cutaway;

Fig. 2 is a cutaway view of a portion of the base assembly of Fig. 1;

Fig. 3 is a side view of the plurality of containers and base assembly of Fig. 1 attached together;

Fig. 4 is a front view of the plurality of containers and base assembly of Fig. 1 attached together;

Fig. 5 is a perspective view of another embodiment of a plurality of containers and a base assembly in accordance with the present invention, with the containers shown separated

from the base assembly;

Fig. 6 is a front perspective view of one of the plurality of containers for use in the Fig. 1 embodiment, with the lid of the container in an opened position;

Fig. 7 is an inside view of the front surface of the body of the container of Fig. 6;

Fig. 8 is an inside view of the back surface of the body of the container of Fig. 6;

Fig. 9 is a top view looking downwards on the opened lid and the opened container of the container of Fig. 6;

Fig. 10 is a perspective view of the container of Fig. 6 with the lid opened and the inside of the container visible;

Fig. 11 is a top view of the top of the lid of the container of Fig. 6;

Fig. 12 is a rear perspective view of the container of Fig. 6 with the lid open;

Fig. 13 is a perspective view of two containers of Fig. 1 stacked on top of one another;

Fig. 14 is a perspective view of the bottom of the base assembly of Fig. 1 with part of the base assembly cut away;

Fig. 15 is a perspective view of the cutaway section of the base assembly shown in Fig. 14;

Fig. 16 is a perspective view of the top of another base assembly in accordance with another embodiment of the present invention with part of the base assembly shown cutaway;

Fig. 17 shows the cutaway section shown in Fig. 16;

Fig. 18 is a perspective view of the bottom on the base assembly in Fig. 16 with part of the base assembly shown cutaway;

Fig. 19 shows the cutaway section shown in Fig. 18;

Fig. 20 is a rear perspective view of a container in accordance with another embodiment

of the present invention where mounting is done by screwing one container on top of another;

Fig. 21 is a front perspective view of the container of Fig. 20; and

Fig. 22 is a front view of the container of Fig. 20.

Detailed Description of the Drawings

Fig. 1 is a perspective view of an apparatus 10 comprised of a plurality containers 100 and a base assembly 300 in accordance with an embodiment of the present invention with the plurality of containers 100 separated from the base assembly 300 and with part of the base assembly 300 shown cutaway.

The plurality of containers 100 include twenty-eight containers in Fig. 1. Containers 100a, 100b, 100c, and 100d are specifically identified in Fig. 1. The base assembly 300 has a front 300c, sides 300d and 300f, and a back 300e. The base assembly has a plurality of receptacles 200, one for each of the plurality of containers 100, each receptacle being able to receive and hold its respective container. The receptacles 200 include receptacles 200a, 200b, 200c, and 200d which are specifically identified in Fig. 1. The base assembly 300 includes a top surface 300a.

Fig. 2 is a cutaway view of a portion of the base assembly 300 of Fig. 1. In Fig. 2 the details of the receptacle 200a are shown. The receptacle 200a includes outer walls 201a through 208a, inner walls 211a through 218a, bottom surface 231a, and protrusion 223a and 227a. The outer walls 201a through 208a form an octagon and the inner walls 211a through 218a also form an octagon. The shortest distance, D4, shown in Fig. 1, between the inner walls 215a and 211a of the receptacle 200a is preferably slightly greater than the distance, D3, shown in Fig. 9 between the outer part of opposing outer walls (such as walls 104a and 108a)

of the container 100a. The distance D3 may be 1 and $\frac{3}{4}$ inches. The height of the container which would be from the bottom of, for example, wall 102a to the top of octagon portion wall 141a, with the lid 110a closed could be 1 and $\frac{3}{16}$ inches (see Figs. 6 and 7). The height, H1 of the wall 102a, shown in Fig. 7, may be $\frac{7}{8}$ inches. The shortest distance between inner walls 216a and 212a, between 217a and 213a, and between 218a and 214a should also be D4 in this example, so that the shape is uniform.

The receptacle walls, such as walls 201a through 208a shown in Fig. 2, may rise $\frac{1}{2}$ inch above the top surface 300a of the base 300. There may be a distance of D6, shown in Fig. 1, of $\frac{3}{4}$ inch between receptacles, such as between receptacle 200a and 200b.

Fig. 3 is a side view of the plurality of containers 100 and base assembly 300 of Fig. 1 attached together. Container 100a is identified. Also shown is leg 301a and leg 301b which are attached to the base assembly 300.

Fig. 4 is a front view of the plurality of containers 100 and base assembly 300 of Fig. 1 attached together. Container 100d is identified. Also shown is leg 301b and leg 301c which are attached to the base assembly 300.

Fig. 5 is a perspective view of a plurality of containers 950 and a base assembly 975 in accordance with another embodiment of the present invention, with the containers 950 shown separated from the base assembly 975. The containers 950 include container 950a which may be the same as container 100a of Fig. 1. The base assembly 975 includes receptacles 900 which include receptacle 900a. Receptacle 900a may be the same as receptacle 200a of Fig. 1. In the embodiment of Fig. 5 a single row of seven containers is provided for attaching to an elongated base assembly 975.

Fig. 6 is a front perspective view of the container 100a for use in the Fig. 1 and Fig. 5

embodiments, with the lid of the container in an opened position. The container 100a includes lid 110a and body portion 120a. The lid 110a is attached to the body portion 120a by a connection piece 161a. The container 100a can be thought of as part of a unit. It is possible that several containers could be attached together in a single unit, although in this embodiment a unit includes only a single container, such as container 100a.

The lid 110a includes a top level octagon portion comprised of walls 141a through 148a. The top level octagon portion comprised of 141a through 148a can be seen by referring to Figs. 6, 11, 12, and 13. The top level octagon portion 167a (defined by 141a through 148a) can also be thought of as a protrusion for inserting into a bottom recess (the same form as recess 166a shown in Fig. 12, which is defined by bottom surface 162a and walls 401a through 408a) of another container for stacking. Recesses 151a through 154a are also located on the top level octagon portion. As shown in Fig. 11, recesses 151a through 154a are located in the walls 141a, 143a, 145a, and 147a, respectively.

The lid 110a also includes a second level octagon portion comprised of flanges 131a through 138a as shown in Figs. 6, 9, 10, 11, and 12. The flange 131a has connected to it a pull tab 139 as shown in Fig. 6. The lid 110 includes a third level octagon portion comprised of walls 121a through 128a. The wall 121a has a protrusion 129a located at its center. As shown in Fig. 9, the lid 110a has an under surface 175a.

The body portion 120a of the container 100a includes walls 101a through 108a as shown in Figs. 6, 9, and 10. The body portion 120a also includes a bottom 162a shown in Figs. 9, 10, and 12. Wall 102a includes a recess 111a on its internal surface shown in Fig. 7. Wall 102a also includes a recess 112a on its outer surface shown in Fig. 6. Wall 106a includes a recess 113a on its outer surface, the general location of which is shown in phantom lines in Fig.

8, recess 113a is in a similar location to recess 112a shown in Fig. 6.

The body portion 120a also includes a large octagonal recess 166a at its bottom. The recess 166a can best be seen in Fig. 12. The bottom of the body portion 120a is defined by bottom surfaces 181a through 188a. Bottom surfaces 181a through 188a are joined to walls 401a through 408a respectively by beveled surfaces 191a through 198a, respectively. The walls 401a through 408a actually form the recess at the bottom the portion 120a. The central bottom surface 162a provides a closed and sealed structure inside the body portion 120a. The recess at the bottom of body portion 120a includes protrusions 172a, 174a, 176a, and 178a which extend outward from walls 402a, 404a, 406a, and 408a. The large octagonal recess 166a at the bottom of body portion 120a has internal dimensions and is of a shape so that a container, such as container 100b, which is in the same form as container 100a, can fit its top level octagon portion or protrusion defined by walls 141b through 148b (not shown but the same form as portion 167a defined by walls 141a through 148a) inside the large octagonal recess 166a at the bottom of the body portion 120a. Container 100a is shown stacked on top of container 100b in Fig. 13. The protrusions 172a, 174a, 176a, and 178a of the container 100a fit into the recesses of the container 100b at its top level octagon (i.e. the same form as recesses 151a, 154a, 153a , and 152a shown for container 100a) when the container 100a is stacked on top of the container 100b as shown in Fig. 13.

The lid 110a of the container 100a is shown open in Fig. 6. When the lid 110a is closed, the protrusion 129a fits inside the recess 111a so that the lid 110a is held closed until a sufficient amount of force is applied to pull tab 139 to cause the lid 110a to open.

The walls 121a through 128a of the lid 110a fit inside the walls 102a, 108a, 107a, 106a, 105a, 104a, and 103a of the body portion 120a respectively. The closest distance D1 between

the outer surfaces of opposing walls 127a and 123a, shown in Fig. 9, is slightly less than the closest distance D2 between the inner surfaces of walls 104a and 108a, shown in Fig. 9. The shortest distances between outer surfaces of opposing walls 128a and 124a, 121a and 125a, 122a and 126a is also D1 and the shortest distances between the inner surfaces of walls 103a and 107a, 101a and 105a, and 102a and 106a is also D2. In this manner the walls 121a through 128a fit snugly within the walls 101a through 108a.

The flanges 131a through 138a fit on top of the walls 102a, 101a, 108a, 107a, 106a, 105a, 104a, and 103a, respectively and this allows the lid 110a to seal and close the body portion 120a. When closed the container 100a has a closed chamber bounded by lid 110a under surface 175a, , walls 101a through 108a, bottom surface 162a, and closed off by the combination of walls 121a through 128a and flanges 131a through 138a.

Fig. 7 is an inside view of the front surface 102a of the body 120a of the container 100a of Fig. 6. The recess 111a is shown for inserting the protrusion 129a of the lid 110a. The location of the recess 112a is shown for inserting the container 100a into the receptacle 200a, so that protrusion 227a shown in Fig. 2 is inserted into recess 112a to hold the container 100a to the base assembly 300.

Fig. 8 is an inside view of the back surface 106a of the body portion 120a of the container 100a of Fig. 6. The location of the recess 113a is shown, into which the protrusion 223a can be inserted in order to hold the container 100a in the receptacle 200a and to the base assembly 300.

Fig. 9 is a top view looking downward on the opened lid 110a and the opened body portion 120a of the container 100a of Fig. 1. The various portions of the diagram have been described previously.

Fig. 10 is a perspective view of the container 100a of Fig. 1 with the lid 110a opened and the inside of the body portion 120a of the container 100a visible.

Fig. 11 is a top view of the top of the lid 110a of the container 100a of Fig. 6.

Fig. 12 is a rear perspective view of the container 100a of Fig. 6 with the lid 110a open. The features of this diagram have been described.

Fig. 13 is a perspective view two containers 100a and 100b of Fig. 1 stacked on top of one another. The features of this diagram have been described.

Fig. 14 is a perspective view of the bottom of the base assembly 300 of Fig. 1 with part of the base assembly 300 cut away. The base assembly 300 includes bottom legs 301a through 301d. Fig. 15 is a perspective view of the cutaway section of the base assembly 300 shown in Fig. 14.

Fig. 16 is a perspective view of the top of a base assembly 600 in accordance with another embodiment of the present invention with part of the base assembly 600 shown cutaway. Fig. 17 shows the cutaway section shown in Fig. 16. The base assembly 600 is the same as the base assembly 300 shown in Fig. 1 except that each receptacle of a plurality of receptacles 500 has a octagonal opening. Fig. 16 shows receptacles 500a and 500b of the plurality of receptacles 500. Receptacle 500a is shown in detail in Fig. 17. Receptacle 500a includes outer walls 501a through 508a and inner walls 511a through 518a. The receptacle 500a also includes fringe surfaces 531a through 538a. The receptacle also includes protrusions 527a and 523a which have a function and are analogous to protrusions 227a and 223a shown in Fig. 2. The receptacle 500a also includes octagonal opening 541a. A container, such as container 100a of Fig. 1, can be inserted into receptacle 500a so that recesses 112a and 113a (shown in Figs. 6-8) have the protrusions 523a and 527a inserted into them,

respectively. However, unlike the surface 231a of Fig. 2, the receptacle 500a has a central opening 541a and only outer fringe surfaces 531a through 538a.

The bottoms of the walls 101a through 108a of the container body 120a can come in contact with the fringe surfaces 538a, 537a, 536a, 535a, 534a, 533a, 532a, and 531a respectively, which helps to prevent the container 100a from falling through the opening 541a. In addition the closest distance, D5, shown in Fig. 16 between the opposing fringe surfaces 535a and 531a is preferably less than the closest distance, D3, between the opposing walls 104a and 108a (shown in Fig. 9). In this way the container 100a won't fall through the opening 541a. The opening 541a is used in conjunction with a transparent bottom 162a of the container 100a so that an individual can view the contents of the container 100a, i.e. see what color it is or some other characteristic.

Fig. 18 is a perspective view of the bottom on the base assembly 600 in Fig. 16 with part of the base assembly 600 shown cutaway. Fig. 19 shows the cutaway section shown in Fig. 18. Legs 601a-d are shown. The opening 541a is identified.

Fig. 20 is a rear perspective view of a container 700a in accordance with another embodiment of the present invention where mounting is done by screwing one container 700a on top of another container of the same form. Fig. 21 is a front perspective view of the container 700a of Fig. 20; and Fig. 22 is a front view of the container 700a of Fig. 20. Fig. 20 shows walls 701a through 708a for body portion 720a similar to body portion 120a of container 100a. Instead of an octagonal recess with protrusions as in Fig. 12, the container 700a has a circular recess 822a with threads 821a. The container 700a also has bottom surfaces 781a through 787a and a recess 713a for inserting a protrusion such as protrusion 523a of the base assembly 600 into. There is a similar recess 712a for inserting the protrusion 527a into, to hold

the container 700a to the base assembly 500, for example. The container 700a has a connection piece 761a, flanges 731a through 738a, and pull tab 739a. The lid 710a has a circular region 812a on its top which has threads 811a. The top circular region 812a can be screwed into the bottom region of a similarly formed container (i.e. a bottom region similar to 822a), to stack the containers one on top of each other so that they are held in place.

All parts of present invention can be transparent. However, it is preferable in one embodiment that all parts of the containers 100 such as container 100a be opaque (not transparent) and colored, except for the bottom surface such as 162a of the body portion 120a. Having the container 100a opaque, not transparent, and colored, protects pills and tablets from the effect of heat and light. Having the bottom surface 162a transparent allows one to see inside the container to see the color of the contents or some other characteristic of what is inside.

It is preferable that the base 300 be transparent including the receptacles 200, such as receptacle 200a, and bottom extended circular stub legs 301a through 301d. Transparency of the base assembly 300 and the bottom side of octagonal containers 100 (such as surface 162a) allows persons to quickly view contents by flipping the entire assembled container apparatus 10 shown in Fig. 1 upside down.

The base 300, including extended stub legs 301a through 301d and the inner and outer walls of receptacles 200, is preferably formed and integrally molded from plastic. The containers 100 are similarly so formed. The lids of the containers 100 such as lid 110a are similarly so formed and molded together with the container 100a and as a separate assembly and pressed together in permanent fashion.

The circular stubs 301a through 301d may be made of rubber or some material which is

less likely to scratch a table top surface. Each stub, such as stub 301a can be located $\frac{3}{4}$ of an inch from each corner angle, such as corner 311 shown in Fig. 14. The four stubs 301a through 301d form four legs for the base assembly 300. The base assembly 300 may be placed on a table top which may be made of glass wood, or any other known material.

Each container of containers 100 can be used to store pills, tablets, liquids, paints, or any other possible material. Container lids, such as lid 110a snap shut to close. Each lid such as lid 110a, should be snug fit, providing individual airtight compartments to maintain storage of pills and tablets or liquids. Each container of containers 100 can connect to another of containers 100 by a snap fit method as previously described.

Each inner wall, such as inner wall 211a may extend $\frac{1}{4}$ (one quarter) of an inch off the top surface 300a of the base assembly 300 shown by Figs. 1 and 2. In some cases D3, the outer width of the container 100a may actually be slightly larger than D4, the width of the distance between the inner walls of the receptacle 200a and the receptacle 200a walls 201a-208a, and 211a through 218a may be elastic and may stretch to allow the container 100a to snugly fit within the receptacle 200a. Other manners of inserting a container into a receptacle which allow the receptacle to be removed and allow the receptacle to fit snugly may be used.

Each receptacle 200, such as receptacle 200a, is spaced approximately a distance D6, which may be $\frac{3}{4}$ of an inch from a neighboring receptacle. For example receptacle 200a may be spaced a distance D6, shown in Fig. 2, from receptacle 200b. this allows adequate spacing so that an individual's fingers can be positioned within the space to manually remove each container of containers 100. The same $\frac{3}{4}$ inch spacing may exist at the side and end borders of the base 300, i.e. there may be a spacing of D6 inches from the receptacle 200a to the end 300f of the top surface 300a of the base assembly 300.

The present invention in various embodiments has many advantages. Some embodiments allow pills to be administered quickly once stocked. The twenty-eight container embodiment allows many pills to be stocked. The embodiment of Fig. 1 could be used for a one a day administration of pills for a twenty-eight day supply or a four a day administration of pills for a seven day supply.

An important feature is the mobility feature, i.e. the fact that any container, such as container 100a can be dislodged or separated from the base 300 and carried in a purse or pocket if a person for example is going on a vacation. The stacking feature allows containers to be connected to one another and to carry any number desired in purse or pocket. The snap fit lid, such as lid 110a allows any container to open and close quickly. The snap fit contact in some embodiments between raised walls such as walls 201a through 208a on base 300 and container 100a means any container can be quickly lodged and dislodged from the base. The snap fit contact between individual containers means they can be lodged and dislodged from each other when stacked and unstacked. Any container can be reached quickly in the embodiments of Figs. 1, 5, and 16. All containers 100 are visibly displayed making each easily and quickly reached without need to assemble or disassemble. The transparent or open hole underside allows one to observe contents without opening individual containers. The base 300 may be entirely made of transparent material. The containers 100 could be transparent plastic but preferably there is opaque plastic for the walls 101a – 108a and the lid 110 and transparent plastic for the bottom 162a.

The present invention in some embodiments allows people to pocket an individual container or individual containers and use the contents at any time and at any location. Previous devices, such as shown in U.S. patent no. 4,038,937 could not be placed in the pocket and used

in any location. In some embodiments the present invention allows containers to be either connected horizontally (by being connected to a base assembly) or connected vertically by being stacked one on top of another. This allows any desired regimen of use to be implemented as an individual so determines. Prior devices typically have one manner of connecting such as stacking or being connected horizontally and also are not typically removable or detachable. This designates a set regimen for use. An individual cannot vary a regimen as based upon a modified need in these prior devices.

The apparatus of Fig. 1 can be used to house artist's paints, as a pill container to store pills and tablets, and to store contact lenses. It can also be used to house make up shades of various colors and hues. It can be used for house samplings of any kind, to store adhesives, to store hand creams, to house liquids used in industry, and to store lubricants.

Any changes, modifications, variations, other used and applications that do not depart from the spirit and scope of this invention are considered to be covered by this invention.